MODIS BRDF/Albedo Products: V004 Enhancements

Development Team:

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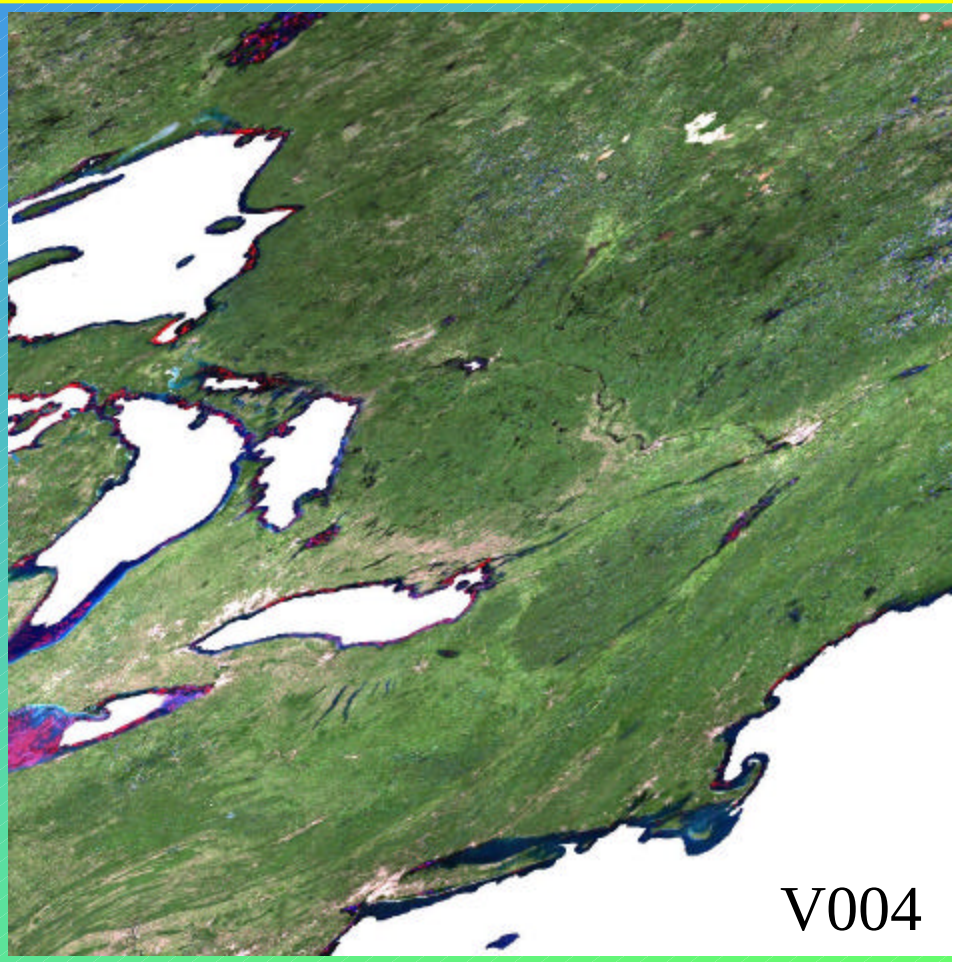
V004 Enhancements

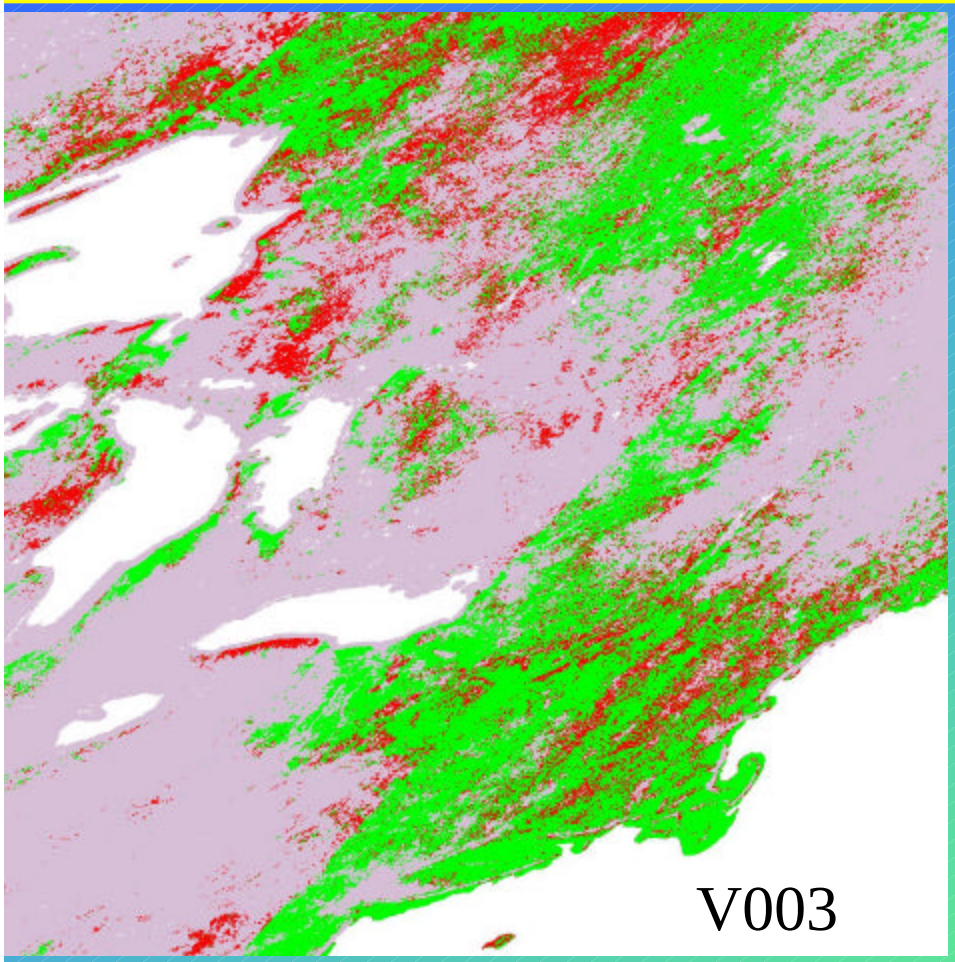
- We benefit greatly from the enhanced upstream processing.
- We have implemented the SIN projection and the 1/20th degree resolution CMG products for BRDF parameters, albedo quantities and NBAR.
- MODIS derived BRDF model values have been used to update the *a priori* database used for the backup magnitude inversion algorithm.
- New shortwave and NIR narrow-to-broadband conversion factors for “pure” snow pixels (Shunlin Liang) have been implemented (note that according to Julienne Stroeve and Anne Nolin, individual spectral values retrieved for “pure snow” are quite accurate and the N2B factors used for the visible broadband values are appropriate).

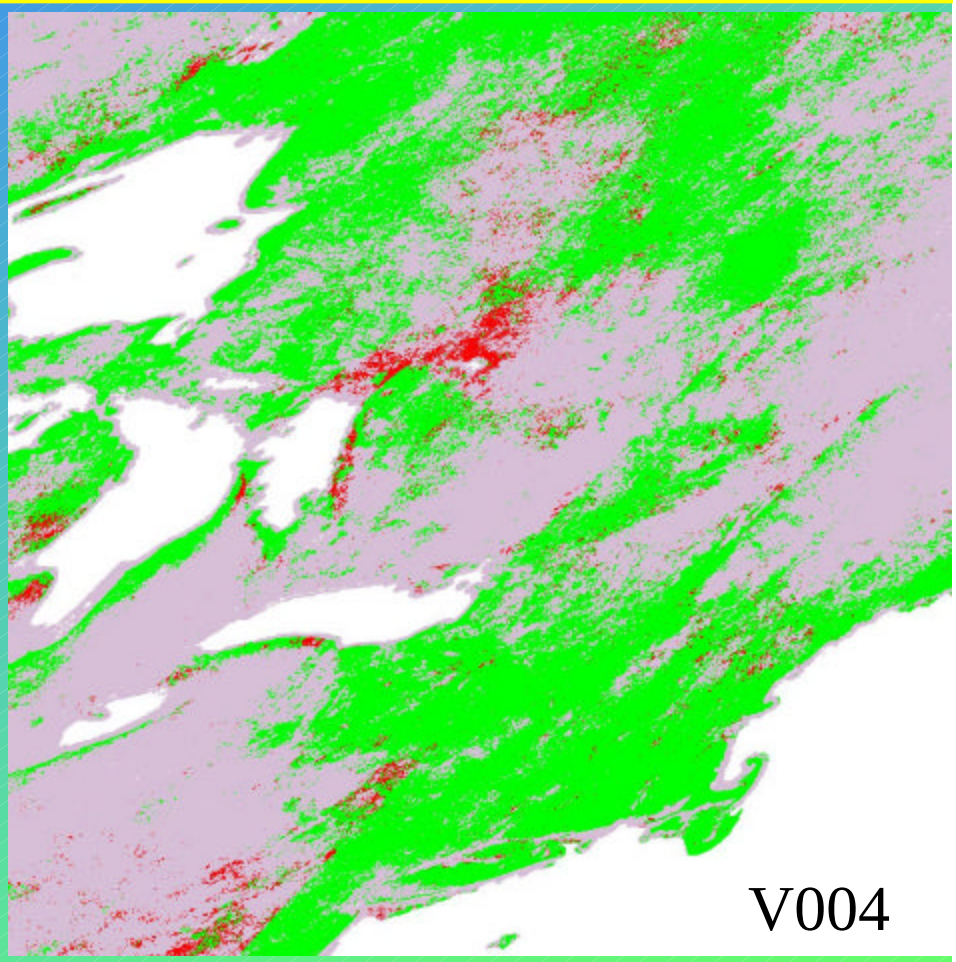
V003 vs V004



True color composite: Stretches have been implemented to highlight the differences --- overall < 3% mean change.

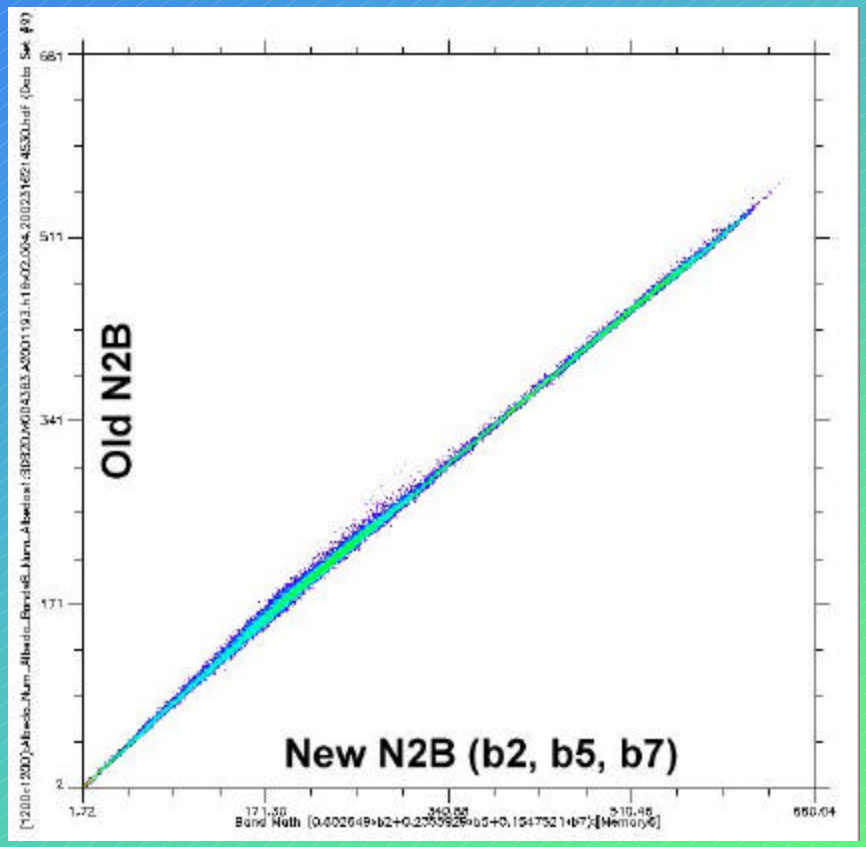
V003 vs V004





Green: Highest quality, Red: Moderate quality, Gray: Backup algorithm

New N2B for “pure snow”

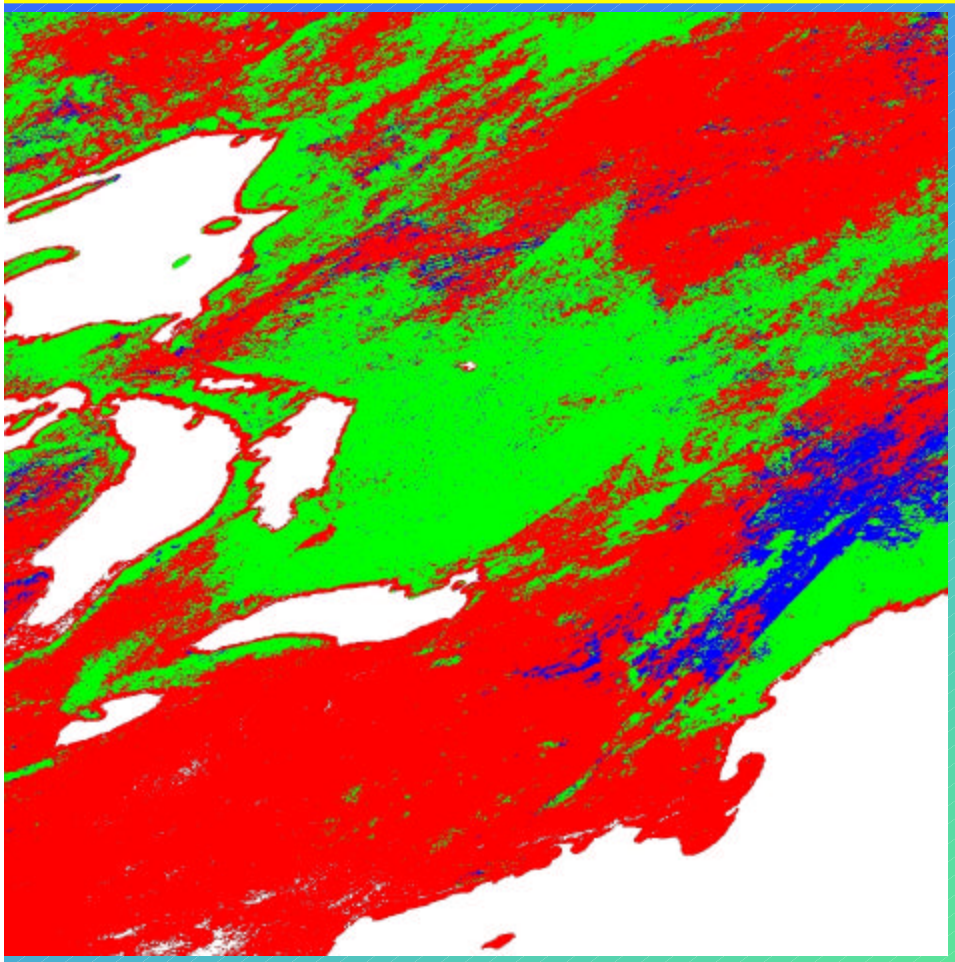


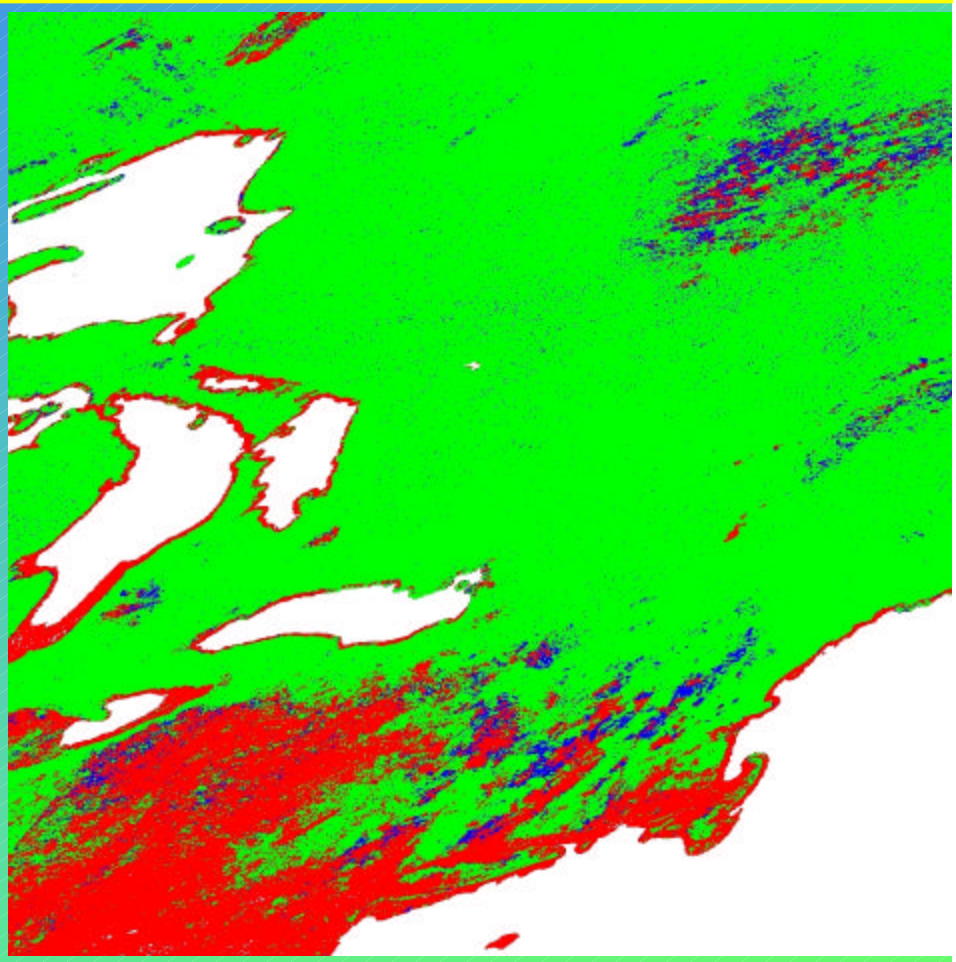
Known Issues

- Continued improvements in the atmospheric correction algorithm (MOD09) and the cloud algorithm (MOD35) will lead to further improvements in product quality.
- Aqua plus Terra combined processing will begin in 2003 and will also lead to improvements in the product quality (on any clear day, more observations will be available --- at slightly different illumination angles).

Terra-only vs Terra+Aqua NBAR
13 - 28 August, 2002

Terra-only vs Terra+Aqua Quality Flags



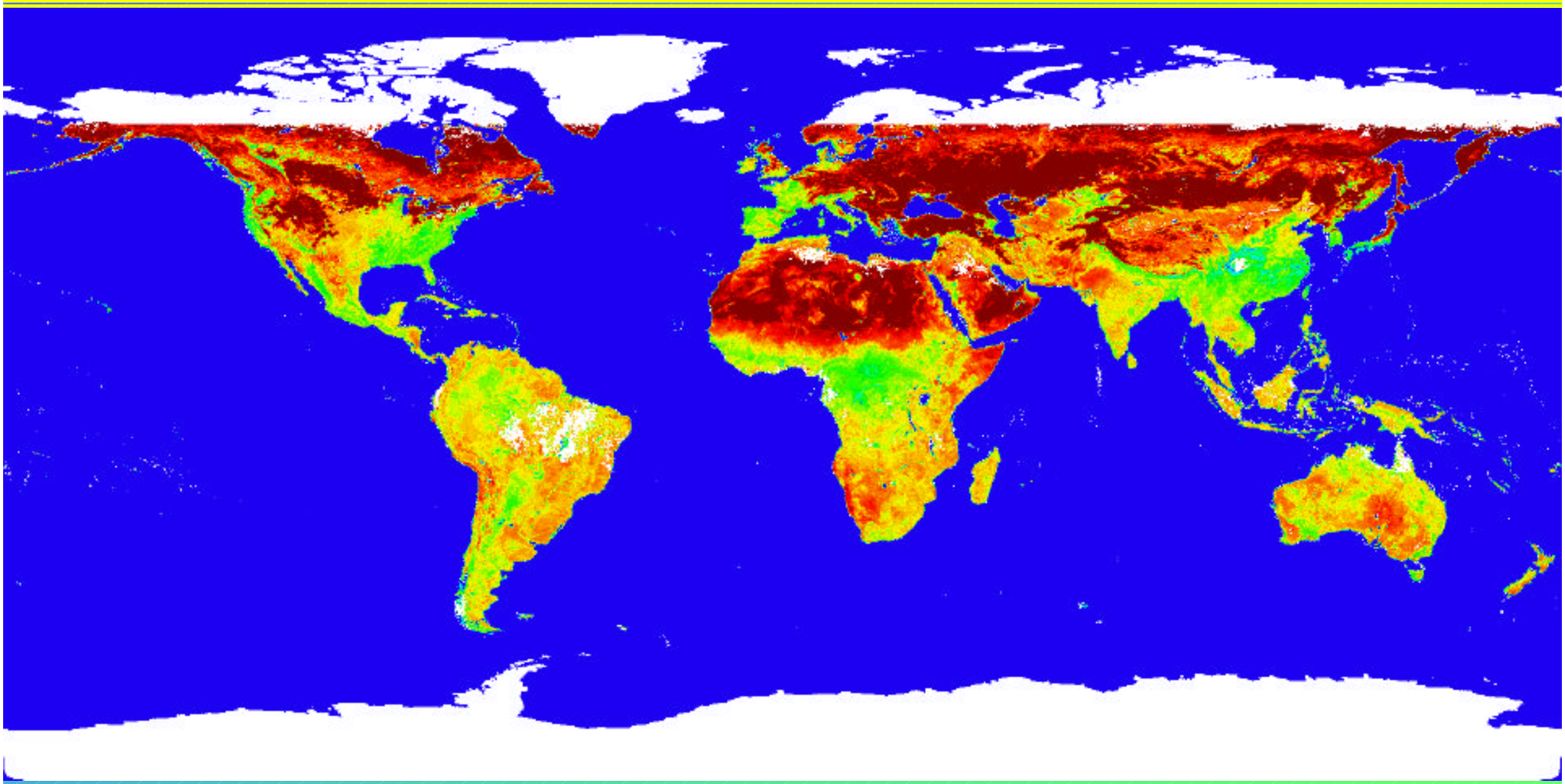


Green: High quality, Blue: Moderate quality, Red: Low quality

Known Issues - continued

- We will continue our outreach to the Modeling Communities:
  - Now that two years of reprocessed (V003) data are available, we are being asked to prepare quite a number of customized data sets for modeling groups.
  - We are actively collaborating with the NCAR-CCSM climate community, the ECHAM-4 climate community, and the LPJ biogeochemical community.
- We wish to extend the L3 processing to include the Arctic and Antarctic (for at least a few sunlit periods each year).

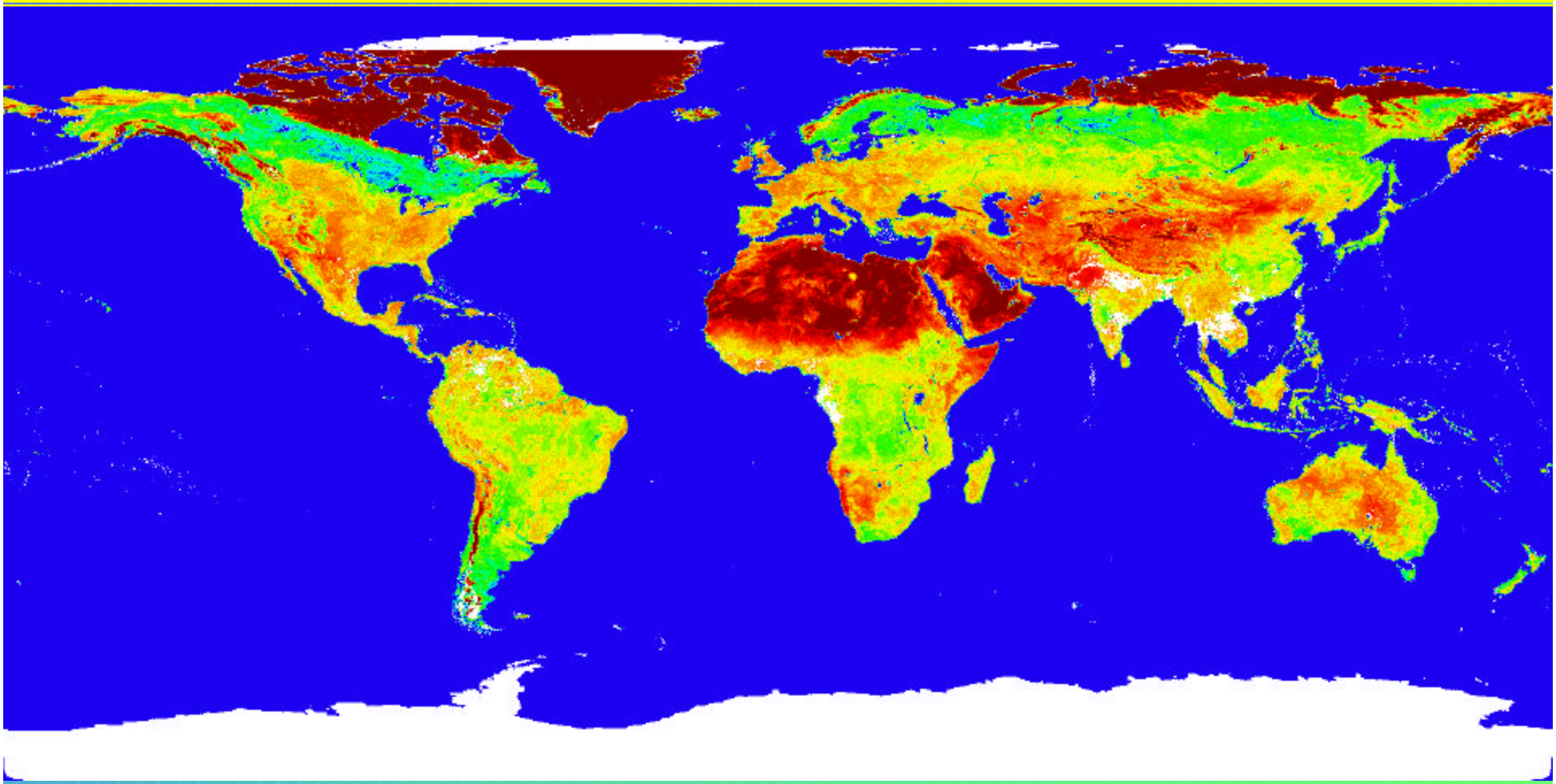
CMG Broadband White-Sky Albedo (0.3-5.0mm)
1 - 16 January, 2002



No Data

0.0 0.2 0.4

CMG Broadband White-Sky Albedo (0.3-5.0mm)
25 May - 9 June, 2002



No Data

0.0 0.2 0.4

V005 Enhancements Under Consideration

- An increase in the spatial resolution of products to 500m.
- Implementation of a daily rolling 16 day processing schedule:
  - Frequency of the archived products (daily, 8 day, or 16 day is still being explored).
- Implementation of a “true month” CMG.
- Implementation of improvements to both the primary BRDF algorithm and the BRDF database for the backup algorithm.